

March 13, 2009

To Whom It May Concern:

I'm writing this letter to express strong support for the SciDAC Visualization and Analytics Center for Enabling Technology in their upcoming program review. In support of my science efforts, the team has provided invaluable support helping me and my teams make progress towards petascale science by developing visualization capabilities for high resolution, geodesic grid-based data and providing an IO API and visualization capability for our new hybrid subsurface model.

I am writing as the Principal Investigator of two SciDAC Science Application Partnerships (SAP). The first SAP is providing IO and data services for Professor Dave Randall's Global Cloud Resolving Model (GCRM). The second SAP is providing a subsurface modeling user environment for Dr. Timothy Scheibe's Hybrid Numerical Model. The latter project is supported by an additional SAP, led by Dr. Bruce Palmer, which is developing the computational framework and particle-based portion of the hybrid model. In my roles, I am responsible for implementing a data strategy for each project and integrating visualization and analysis solutions.

Through a productive collaborative effort with our teams, the VACET Center has had a positive impact on our (science) projects. These accomplishments include:

- visualization capabilities developed in VisIt for handling GCRM data
- adopting H5Part as a data model and API for persisting particle-based outputs
- using VisIt for visualization of large particle datasets
- close collaboration to verify and test scalable data model for GCRM
- assistance in troubleshooting and profiling collective IO for GCRM code

Both models are radically new, ground-up development efforts. The visualization tools are invaluable to the build and test process and will be equally valuable for model analysis. In particular, the capability for remote parallel visualization is critical for these high resolution models. The ready access to the H5Part tools saved substantial time in developing a data model for the particle model and we expect to substantially reduce

the effort required completely parallelize IO in these simulations. In combination with the expert help on IO profiling and troubleshooting on Franklin, VACET has had a positive impact on our science efforts, and is providing a valuable service to the scientific community.

Sincerely,

A handwritten signature in cursive script, appearing to read "Karen Schuchardt".

Karen Schuchardt  
Chief Scientist  
Applied Computer Sciences